

Ch 20 Section 1

I. Reproduction

A. The Importance of Reproduction

1. organisms produce offspring through the process of reproduction
2. without reproduction, species would die off
3. Hereditary material is passed from parent to offspring (child)
4. DNA - deoxyribonucleic acid
 - a. controls how offspring will look and how they will function
 - b. determines an offspring's characteristics
5. reproduction always involves the transfer of hereditary material

B. Life's Code (DNA)

1. DNA is found in all cells in chromosomes
2. The genetic blue print for making an organism
3. Controls many things
 - a. texture of hair
 - b. shape of ears
 - c. blood type
 - d. how you digest your food

4. Shaped like a twisted ladder

a. sides form the backbone of the DNA Molecule

b. rungs hold the genetic information

c. each rung is made up of a pair of chemicals called bases

d. there are only 4 bases

e. there are billions of rungs

f. arranged in thousands of different orders

5. The sequence forms a code specific to each organism

II. Mitosis and Cell Division

A. Mitosis - replaces dead or damaged cells and grows new identical cells

1. DNA in the nucleus is copied

2. Nucleus divides into 2 identical nuclei

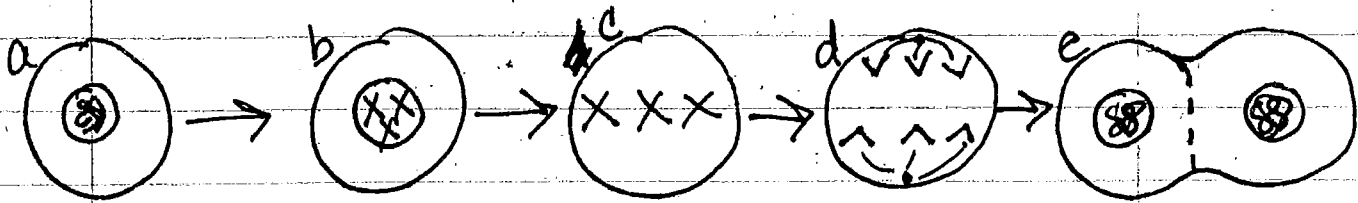
3. Each new nucleus receives a copy of the original DNA

4. 5 step process

a. chromosomes in the nucleus are copied

b. Copied chromosomes become visible through a microscope

- c. Copied chromosome pairs line up along the middle of the cell
- d. Each pair separates and individual chromosomes are pulled to opposite sides of cell
- e. The rest of the cell divides.



B. Reproduction by One Organism

1. Asexual Reproduction

a. new organism is produced from a part of another organism by mitosis and cell division (only one parent)

b. DNA of new organism is exact copy of parent

c. bacteria divides in half, after copying its DNA, forming 2 new bacteria cells

2. Budding

a. a new ~~the~~ organism grows or

- buds on the parent organism
- b. has identical DNA to parent
- c. breaks off from parent when mature

3. Regeneration

- a. some organisms can replace body parts that have been lost due to injury
- b. sea stars can grow a new arm
- c. lizards can grow a new tail

4. Cloning

- a. making copies of organism
- b. occurs in organisms that normally sexually reproduce
- c. uses only one parent cell
- d. Dolly the sheep

III. Sex Cells and Reproduction

A. Sexual Reproduction

- 1. a new organism is produced from the DNA of 2 cells from 2 parents.

- 2. sex cells are the specialized cells

5.

that carry DNA

3. Egg cell from a female and sperm cell from a male

B. Production of Sex cells

1. A human body cell has 46 chromosomes arranged in 23 pairs

2. Each chromosome of a pair has genetic information about the same things. - for ex: hair color, eye color, height

3. Meiosis - the nucleus divides twice. Four sex cells form, each with half the number of chromosomes of the original cell.

a. Human egg and sperm contain 23 chromosomes

b. When egg and sperm join during fertilization, a new organism with 46 chromosomes is formed

C. Sex cells in plants

1. Plants reproduce sexually

2. Male flower parts produce pollen; which contains sperm cells

3. Female flower parts produce eggs

4. Pollen fertilizes the egg and a new cell forms and becomes enclosed in a seed